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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Min-Woo Lee

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EXAMINER

JACOBS, TODD D

ART UNIT

PAPER NUMBER

3746

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/572,954	Applicant(s) LEE, MIN-WOO	
	Examiner TODD D. JACOBS	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/21/2006, 8/6/2007, 11/30/2007</u> . | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Claim Objections

1. Claims 7, and 9 are objected to because of the following informalities: on line 2 of each claim there is the symbol "~". It would make the claim more clear if the word "to" was used.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 7, 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 7, 9 line 2 each state "the end coil", however it is not clear which end coil since "the end coil" is in reference to "end coils". For the purpose of this office action, the above quotations will be interpreted as "one of the end coils".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Tack (6,485,271).

7. In re claim 1, Tack discloses a reciprocating compressor comprising:

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- a casing including a suction pipe (12) through which a fluid is introduced from the outside and a discharge pipe (13) through which the fluid is discharged outside and forming a predetermined internal space;
- a compressor main body positioned in the casing, compressing the fluid introduced through the suction pipe with a linear reciprocating motion of a piston (7) and discharging the compressed fluid through the discharge pipe; and
- a supporting unit (shown in Fig 4) including a plurality of coil springs (20, and there are two of these) connecting the compressor main body to the casing, wherein the plurality of coil springs includes, respectively, end coils (the **very** last coils connected to the casing of the compressor main body; on Fig. 4 each coil pair is shown as a pair of circles, one abutting 3 and another abutting 1b) tightly wound so as to be fixed to one surface of the compressor main body and to one surface of the casing, respectively; and an inner coil (20, 20', 30, 3', 1b') having at least one part which is tightly wound and positioned between the end coils.

8. In re claim 2, Tack discloses the compressor of claim 1, wherein the inner coil comprises: a pair of elastic parts (20, 20') respectively wound from the end coils at predetermined pitches; and a mass part (30) tightly wound between the pair of elastic parts.

9. In re claim 3, Tack discloses the compressor of claim 2, wherein each of the elastic parts is wound at regular pitches. Note that regular according to Merriam-Webster's dictionary means "formed, built, arranged, or ordered according to some established rule, law, principle, or type". The order is that the pitch increases then decreases from each end portion to the mass part.

10. In re claim 4, Tack discloses the compressor of claim 2, wherein each of the elastic parts is wound at pitches increased as it goes from the end coil toward the mass part. Note that this occurs just after the end coils along the spring.

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11. In re claim 5, Tack discloses the compressor of claim 2, wherein each of the elastic parts is wound at pitches decreased as it goes from the end coil toward the mass part. Note that this is when the spring is closer to the mass part than the end coil part but still going toward the mass part.

12. In re claim 6, Tack discloses the compressor of claim 2, wherein each of the elastic parts is wound at pitches increased and decreased alternately between the end coil and the mass part. This occurs as the elastic part goes from the beginning (end coil) to the end (mass part).

13. In re claim 7, as best understood, Tack discloses the compressor of claim 2, wherein the winding number of the mass part is two to four times as many as that of one of the end coils. Note that there are two coils “hugging” the mass part, and one coil for each end coil. Further note that the winding number is the amount of full circles the spring makes around an object (or the number that directly abuts the object) – this is shown by the circled pairs (pairs being pairs of circles on the left/right side of 1b’ and 3’) as shown in Fig. 4 for the coiled spring.

14. In re claim 8, Tack discloses the compressor of claim 1, wherein the inner coil comprises: a pair of mass parts (3’, 1b’) tightly wound right next to the end coils; and an elastic part (20, 20’) positioned between the pair of mass parts and wound at pre-determined pitches.

15. In re claim 9, as best understood, Tack discloses the compressor of claim 8, wherein the winding number of the mass part is two to four times as many as that of one of the end coils. Note that each mass has four coils “hugging” them whereas each endcoil has one coil/winding abutting.

16. In re claim 10, as best understood, Tack discloses the compressor of claim 9, wherein the elastic part is wound at regular pitches (with regular defined above).

17. In re claim 11, as best understood, Tack discloses the compressor of claim 9, wherein the elastic part is wound at pitches decreased as it goes toward a central portion of the coil

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spring (note that from the endcoil close to 1b, toward item 30 (a central portion), the elastic portion has a portion that increases pitch, then decreases, therefore the pitches do decrease as it goes toward the central portion).

18. In re claim 12, as best understood, Tack discloses the compressor of claim 9, wherein the elastic part is wound at pitches increased as it goes to the central portion of the coil spring (see above rejection for claim 11, the pitches increase *and* decrease).

19. In re claim 13, as best understood, Tack discloses the compressor of claim 9, wherein the elastic part is wound at pitches increased and decreased alternately.

20. In re claim 14, Tack discloses the compressor of claim 1, wherein the inner coil comprises:

- a first elastic part (20) wound from the end coil fixed to one surface of the compressor main body at predetermined pitches;
- a second elastic part (20') wound from the end coil fixed to one surface of the casing at predetermined pitches that are different from those of the first elastic part (note that some of these predetermined pitches are different than the predetermined pitches of the first elastic part; for instance the pitches in the center of 20' are certainly different than the pitches at the ends of 20); and a mass part (33) tightly wound between the first and second elastic parts. Note that there is no pattern/direction described on how to compare the pitches of these two elastic parts and that causes further inherent anticipation. For instance, when starting at the bottom of spring 20' and making an array of the pitches until the mass piece (33), then starting just above the mass piece and going upward toward end piece 3 and making an array of each pitch, these two arrays will certainly be different.

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21. **However, it is suggested to get over this by wording the claim to meet the following concept:** starting from the top of the first elastic part, making an array of each pitch until center piece (33), and starting from the bottom of the second elastic part, making an array of each pitch until the center piece (33). This *may* cause the arrays to be similar. Nevertheless, as claimed the "predetermined pitches" are certainly different between the first and second elastic parts.

22. In re claim 15, Tack discloses the compressor of claim 14, wherein the first and second elastic parts respectively have regular pitches, and the two pitches are different from each other.

23. In re claim 16, Tack discloses the compressor of claim 14, wherein the first and second elastic parts are wound at pitches increased as it goes toward the mass part, and the increasing ratios of the pitches of the first elastic part and the pitches of the second elastic part are different from each other. Note that depending on the start/end point to measure the ratio, Tack discloses this. For instance, consider that the pitch goes from a minimum 1cm to a maximum 2cm while it is increasing. On one of the elastic parts, depending on how measured, there will be a ratio of 1/2, however, on the other, there could be a ratio of 1.5/2 -- the ratio needs a distinct start and end point, and since there is none, sections that have different ratios can be seen in Tack. In other words, there is a portion on the first elastic part that increases pitch at a different rate than some other portion of the second elastic part.

24. In re claim 17, similarly explained above for claim 16, Tack discloses the compressor of claim 14, wherein the first and second elastic parts are wound at pitches decreased as it goes toward the mass part, and the decreasing ratios of the pitches of the first elastic part and the pitches of the second elastic part are different from each other.

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25. For claims 16-17, **it is suggested to get over this by wording the claim to meet the following concept:** ensure that the total distance of elastic part is defined so that half of the increase of one elastic part cannot be compared to the full increase of the other elastic part.

26. In re claim 18, Tack discloses the compressor of claim 14, wherein the first and second elastic parts are wound at pitches increased and decreased alternately as it goes toward the mass part, and the increasing and decreasing ratios of the pitches of the first elastic part and the pitches of the second elastic part are different from each other.

27. In re claim 19, Tack discloses the compressor of claim 14, wherein one of the first and second elastic parts is wound at regular pitches (note that as discussed above, the definition of regular is "formed, built, arranged, or ordered according to some established rule, law, principle, or type", for example, it has a decreasing pitch portion), but the other elastic part is wound at pitches increased as it goes toward the mass part.

28. In re claim 20, Tack discloses the compressor of claim 14, wherein one of the first and second elastic parts is wound at regular pitches, but the other elastic part is wound at pitches decreased as it goes toward the mass part.

29. In re claim 21, Tack discloses the compressor of claim 14, wherein one of the first and second elastic parts is wound at regular pitches, but the other elastic part is wound at pitches increased and decreased alternately as it goes toward the mass part.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TODD D. JACOBS whose telephone number is 571-270-5708. The examiner can normally be reached on Monday - Friday, 7:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit
3746

/TODD D. JACOBS/
Examiner, Art Unit 3746